

**VERTICAL FIELD EFFECT TRANSISTORS INCORPORATING
SEMICONDUCTING NANOTUBES GROWN IN A SPACER-DEFINED
PASSAGE**

Abstract of the Disclosure

Vertical field effect transistors having a channel region defined by at least one semiconducting nanotube and methods for fabricating such vertical field effect transistors by chemical vapor deposition using a spacer-defined channel. Each nanotube is grown by chemical vapor deposition catalyzed by a catalyst pad
5 positioned at the base of a high-aspect-ratio passage defined between a spacer and a gate electrode. Each nanotube grows in the passage with a vertical orientation constrained by the confining presence of the spacer. A gap may be provided in the base of the spacer remote from the mouth of the passage. Reactants flowing through the gap to the catalyst pad participate in nanotube growth.